

AMENDMENTS TO THE CLAIMS

1. (Original) A chemically bonded biomaterial element composed of an inorganic cement, exhibiting minimal dimensional changes upon hardening and long-time use, improved mechanical properties and improved translucency characterised in an algorithm to describe the micro-structure, which is expressed as

$$\lambda = \frac{d * (1 - V_F)}{(V_F)}$$

where λ is the distance between filler particles of mean size d , and V_F is the volume content of non-reacted cement and added filler, and where $\lambda = 10 \mu\text{m}$.

2. (Original) A biomaterial element according to claim 1, characterised in that $\lambda = 8 \mu\text{m}$, even more preferred $\lambda = 4 \mu\text{m}$ and most preferred $\lambda = 2 \mu\text{m}$.

3. (Original) A biomaterial element according to claim 1 characterised in that V_F is less than 50 %, preferably 5-45 % and even more preferred 15-35 %.

4. (Currently amended) A biomaterial element according to ~~any one of the preceding claims,~~ claim 1, characterised in that it exerts a pressure or tensile force of $< 5 \text{ MPa}$, even more preferred $< 2 \text{ MPa}$ and even more preferred $< 1 \text{ MPa}$, on a surrounding volume.

5. (Currently amended) A biomaterial element according to ~~any one of the preceding claims,~~

claim 1, characterised in that the inorganic phase is composed of Ca-aluminate and/or Casilicateand/or Ca-phosphate.

6. (Currently amended) A biomaterial element according to ~~any one of the preceding claims~~, claim 1, characterised in that the inorganic phase is composed of phases in the $\text{CaO-Al}_2\text{O}_3$ system, i. e. CaO , $(\text{CaO})_3\text{Al}_2\text{O}_3$, $(\text{CaO})_{12}(\text{Al}_2\text{O}_3)_7$, CaOAl_2O_3 , $(\text{CaO})(\text{Al}_2\text{O}_3)_2$, $(\text{CaO})(\text{Al}_2\text{O}_3)_6$ and/or pure Al_2O_3 with varying relative contents, where the preferred main phases are CaOAl_2O_3 and $(\text{CaO})(\text{Al}_2\text{O}_3)_2$ and the most preferred main phase is CaOAl_2O_3 , a particle size of formed hydrates of these phases being below $3\text{ }\mu\text{m}$, even more preferred below $1\text{ }\mu\text{m}$ and most preferred below $0.5\text{ }\mu\text{m}$.

7. (Currently amended) A biomaterial element according to ~~any one of the preceding claims~~, claim 1, characterised in that it also comprises an organic phase of preferably polyacrylates and/or polycarbonates and preferably at a volume content of $< 5\%$.

8. (Currently amended) A biomaterial element according to ~~any one of the preceding claims~~, claim 1, characterised in that added inert filler particles have a particle size below $5\text{ }\mu\text{m}$, even more preferred below $2\text{ }\mu\text{m}$.

9. (Original) A biomaterial element according to claim 8, characterised in that added filler particles consist of glass particles, apatites, brucite and/or bohmite.

10. (Currently amended) A biomaterial element according to ~~any one of the preceding claims,~~ claim 1, characterised in that it comprises in-situ formed apatite or some other phase that separates the formed hydrates of the main system.

11. (Currently amended) A biomaterial element according to ~~any one of the preceding claims,~~ claim 1, characterised in that a total porosity is below 10 %, even more preferred below 5 %, distributed on minipores having a diameter below 0.5 μm , even more preferred below 0.1 μm , to an extent of at least 90 % of the total porosity.

12. (Currently amended) A biomaterial element according to ~~any one of the preceding claims,~~ claim 1, characterised in that it is a dental material, preferably a dental filling material or a root filling material.

13. (Currently amended) A biomaterial element according to ~~any one of the preceding claims,~~ claim 1, characterised in that it is an orthopaedic material or a bone cement.

14. (Currently amended) A biomaterial element according to ~~any one of the preceding claims,~~ claim 1, characterised in that it is a component or is in granule form, preferably as a carrier material for drug delivery.

15. (Currently amended) A device in connection with the preparation of a chemically bonded biomaterial element according to ~~any one of the preceding claims,~~ claim 1, from a powdered

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material comprising a binder phase and a liquid reacting with the binder phase, characterised in that said device comprises a first container (5) that contains the powdered material, and a second container (3) that contains said liquid reacting with the binder phase, and an openable closure (3) between the containers (5,3).